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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,747	09/30/2004	Koji Inokuchi	43888-336	4371
<div>7590 McDermott Will &amp; Emery 600 13th Street NW Washington, DC 20005-3096</div>			<div>EXAMINER CHU, HELEN OK</div>	
			<div>ART UNIT 1795</div>	<div>PAPER NUMBER</div>
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/509,747

**Applicant(s)**

INOKUCHI ET AL.

**Examiner**

Helen O. Chu

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Applicants' amendments have been received on October 3, 2007. Claims 1, 2 and 6 have been amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

#### ***Continued Examination Under 37 CFR 1.114***

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 3, 2007 has been entered.

#### ***Specification***

4. The disclosure objection is withdrawn.

#### ***Claim Rejections - 35 USC § 112***

1. The rejections under 35 U.S.C 112, first paragraph, on claims 1-6 are withdrawn.
2. The rejections under 35 U.S.C 112, first paragraph, on claims 2 and 3 are withdrawn. The rejection is repeated below for convenience.
3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-6 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "a carbon rod density of 1.65 with either a paraffin wax of 431 molecular weight at a melting point of 145°F or a paraffin wax of 472 molecular weight at a melting point of 155°F" is not reasonably provide enablement for paraffin wax containing hydrocarbon whose molecular weight is 300 to 500 or a microcrystalline wax containing hydrocarbon whose molecular weight is 500-800 characterized in that the endothermic amount of said paraffin wax or said microcrystalline wax per 1 g of said positive electrode current collector obtained by differential scanning calorimetry at 20-45 °C is not more than 1.0J/g". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. The claim recitation would cause undue experimentation by measuring wax containing different amounts of hydrocarbon relative to the density of the carbon rod in order to obtain 1.0J/g. As evidence by Table 1, provided by the Applicants, the examples with the same density of 1.65 g/cm<sup>3</sup> and under 1.0 J/g are only applicable for paraffin wax at MW of 431 and MW of 472 and not for MW of 389. As claimed by the Applicants the range of 300-500 of paraffin wax was disproved by Applicants own experimental table and no further discussion or additional tables were provided concerning the claimed range or unexpected results and how the Applicants found the results of paraffin wax of

MW 389 having a density of  $1.65\text{g/cm}^3$  is under  $1.0\text{J/g}$  as it is claimed. Therefore, it is the Examiners position that the invention from 300-500 MW of paraffin wax is not enabled by the Applicants.

5. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the recitation "endothermic amount of said paraffin wax or said microcrystalline wax per 1 g of said positive electrode current collector obtained by differential scanning calorimetry at 20 to  $45^\circ\text{C}$  is not more than  $1.0\text{J/g}$ " is not supported by the specification in such as way that would reasonably convey to one skilled in the relevant art that would convey to one of ordinary it was not described that the g for  $1.0\text{J/g}$  is 1 g of said positive electrode current collector.

Appropriate corrections are required.

6. Claims depending from claims 1, 2 and 6 rejected under 35 USC 112, first paragraph are also rejected for the same reasons.

7. The rejections under 35 U.S.C 112, second paragraph, on claims 1-6 are withdrawn. The rejection is repeated below for convenience.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation is considered indefinite, since the resulting claims does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). In the present instance, claims 3 recites the broad recitation d1.55-175 g/cm<sup>3</sup>, and claim 2 recites 1.55-1.65 g/cm<sup>3</sup> which is the narrower statement of the range/limitation.

11. To the extent the claims are understood in view of 35 U.S.C 112 rejections above, note the following prior art rejections.

***Claim Rejections - 35 USC § 103***

12. The rejections under 35 U.S.C 103(a), as unpatentable over Nobuaki in view of Nagasawa et al. , on claims 1, 4-6 are maintained. The rejection is repeated below for convenience.

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nobuaki (JP 03297063) in view of Nagasawa et al. (US Patent 4,157,317).

In regards to claim 1-3 and 6, the Nobuaki reference discloses an impregnation material for carbon rod in a manganese dry cell. The abstract describes paraffin wax as the impregnation material consisting hydrocarbon of 300-500 molecular weight,

however, the Nobuaki et al. does not disclose the density of the carbon rod. The Nagasawa et al. reference discloses wax impregnation of a carbon rod and the density of the carbon rod is between 1.6-1.8 g/cm<sup>3</sup>. The Nagasawa et al. reference further discloses below 1.6 g/cm<sup>3</sup> density does not provide sufficient strength and higher than 1.8 g/cm<sup>3</sup> does not easily allow the gases to escape the rod during heating and cracks (on the rod) is likely to occur (Column 5, lines 5-12). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to apply the wax with hydrocarbons with a molecular weight of 300-500 as taught by Nobuaki to the carbon rod with a density between 1.6-1.8 g/cm<sup>3</sup> as taught by Nagasawa et al. to prevent the rod from cracks due to heating and providing a longer life to the manganese dry cell. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. (*MPEP 2144.05 (I)*). Furthermore, the claimed invention of the Applicants are similar to the invention of the prior art and therefore the intrinsic properties must also be the same such as the paraffin wax would also satisfy the rational expression:  $90 < Y + 50.5X < 100$  wherein X is the density of the carbon rod and Y is the entire endothermic amount of said positive electrode current collector obtained by differential scanning calorimetry at 20-100° C, and  $Y > 0$

Regarding claims 4 and 5, the endothermic amount indicated by Applicants as not more than 1.0 J/g obtained by differential scanning calorimetry between 20 to 55°C is not more than 25%, 20 to 60°C is between 25% to 40%, 20 to 65°C is between 40% to 70% are all intrinsic properties of the paraffin wax having a molecular weight of 300 to 500.

is not more than 25%, 20 to 60°C is between 25% to 40%, 20 to 65°C is between 40% to 70% are all intrinsic properties of the paraffin wax having a molecular weight of 300 to 500.

Applicant is advised to prove all of the different combinations of the carbon rod density and the wax of different hydrocarbon amounts as taught by the prior art would also provide an endothermic amount of less than 1.0 J/g.

### ***Response to Arguments***

5. Applicant's arguments filed September 25, 2007 have been fully considered but are not persuasive.

Applicant's principal arguments are:

A) Nobuaki and Nagasawa et al., whether taken alone or in combination, do not suggest the claimed positive electrode current collector. The PTO's apparent attempt to place the burden of disproving all the prior art examples on Applicants is improper. If the PTO maintains this position, Applicants request the PTO point out on what basis such a requirement can be made. Table I of the present specification proves that waxes having the claimed molecular weight and carbon rods with the claimed density do not inherently produce positive electrode current collectors with the claimed endothermic amount

B) It is not necessary, when rebutting an obviousness rejection, to prove that all the prior art examples do not possess the claimed property. Rather, the PTO has the burden of establishing a prima facie case of obviousness, and if the Office Action does so, then Applicants have the burden of rebutting the conclusion of obviousness... As



shown endothermic amount is not an inherent property, and the data in the present specification effectively rebuts the Office Action's assertion of prima facie obviousness.

C) In particular, the cited references do not suggest the unexpected improvement in discharge performance provided by positive electrode current collectors of the present invention, as illustrated in Table 1. As amended, the present claims exclude the high density carbon rod of Example 1. The claimed invention provides the unexpected results of excellent sealing performance and discharge performance of the batteries comprising positive electrode current collectors using low density carbon rods

D) Obviousness can be established only by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Kotzab, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); In re Fine, F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). There is no suggestion in Nobuaki and Nagasawa et al. to substitute a wax wherein an endothermic amount of the paraffin wax or the microcrystalline wax per 1 g of said positive electrode current collector obtained by differential scanning calorimetry at 20 to 450C is not more than 1.0 J/g, and a carbon rod having a density of 1.55 to 1.65 g/cm<sup>3</sup> into the current collector of Nobuaki, as required by claims 1, 2, and 6, nor does common sense dictate the Office Action-asserted modification. The PTO has not provided any evidence that there would be any obvious benefit in making the asserted

modification of Nobuaki et al. See KSR Int'l Co. v. Teleflex Inc., 500 U.S. \_\_\_\_ (No. 04-1350, April 30, 2007) at 20.

E) The only teaching of a positive current collector with the claimed wax and carbon rod density is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The PTO has apparently relied on improper hindsight reasoning in reaching the conclusion of obviousness

In response to the Applicants argument, please consider the following:

A) and C) The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977). Furthermore, Table 1 had given Comparative example 1 to disprove Applicants own invention and not the invention of the prior art. Comparative Example 1 had the same density molecular range in which the Applicants claimed, however, the endothermic amount is over 1.0 J/g. In order to distinguish the claimed invention over the prior art, the Applicants must prove that the invention disclosed by Nobuaki in view

of Nagasawa et al. does not have the same properties as the claimed invention. The Applicants are basically stating that the invention as claimed is not consistent with the another of their same invention.

B) These arguments are not commensurate with the scope of the rejection. The Examiner states that it's obvious and provided motivation to combine the teaching of 300-500 molecular weight paraffin wax impregnated into a carbon rod in Nobuaki in view of Nagasawa et al. which teaches the density of a carbon rod which the Examiner has established a prima facie case of obviousness. It is the Examiners position that because prima facie case of obviousness has been established, the disclosed invention of endothermic amounts, rational expression of  $90 < Y + 50.5X < 100$  are inherent properties. Furthermore, please refer to *MPEP 2112 V*. The data on Table 1 rebuts Applicants own invention and not the prior art because the Applicant did not show the disclosure of the prior art is not applicable to the Applicants claimed invention. That is the disclosure of the combination of Nobuaki in view of Nagasawa et al. does not teach the Applicants claimed invention.

D) These arguments are not commensurate with the scope of the rejection because KSR was never cited, however, KSR is applicable in this case.

Under Section 103, the obviousness of an invention cannot be established by combining the teachings of the prior art references absent some teaching, suggestion or incentive supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). This does not mean that the cited prior art references must specifically suggest making the

combination. *B.F. Goodrich Co. M Aircraft Braking Systems Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996); *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988)). Rather, the test for obviousness is what the combined teachings of the prior art references would have suggested to those of ordinary skill in the art. *In re Young*, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). This test requires us to take into account not only the specific teachings of the prior art references, but also any inferences which one skilled in the art would reasonably be expected to draw therefrom. *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968) A patent claim can be proved obvious merely by showing that the combination of elements was obvious to try. When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product is not of innovation but of ordinary skill and common sense. **KSR v. Teleflex**

E) Furthermore, in response to Applicant's arguments that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Applicant's disclosure, such a reconstruction is proper. *In re McLaughline*, 443 F.2d 1392; 170 USPQ 209 (CCPA 1971)


**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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12/07